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3D model related to the publication: Marine Early Triassic Actinopterygii from Elko County (Nevada, USA): implications for the Smithian equatorial vertebrate eclipse

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Abstract

The presented dataset contains the 3D surface scan of the holotype of *Birgeria americana*, a partial skull described and depicted in: Romano, C., Jenks, J.F., Jattiot, R., Scheyer, T.M., Bylund, K.G. & Bucher, H. 2017. Marine Early Triassic Actinopterygii from Elko County (Nevada, USA): implications for the Smithian equatorial vertebrate eclipse. Journal of Paleontology. <https://doi.org/10.1017/jpa.2017.36>

Keywords: Actinopterygii, Early Triassic, Nevada, Osteichthyes, Smithian

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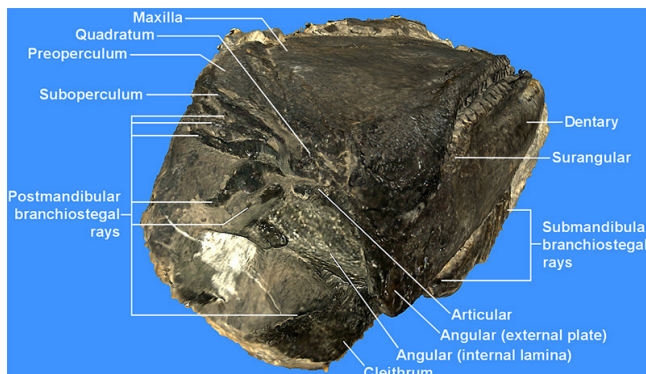


Figure 1. Holotype of *Birgeria americana* Romano et al., 2017 (NMMNH P-66225) from the Smithian (Olenekian, Early Triassic) of Winecup Ranch (Elko County, Nevada, USA) in oblique posteroventral aspect

Model IDs	Taxon	Description
M3#175_NMM	<i>Birgeria</i>	Articulated
NHP-66225	<i>americana</i>	partial skull in right view.

Table 1. Associated model of NMMNH P-66225

other species by the presence of additional elements in the operculogular series, such as an antoperculum and six branchiostegal rays in the postmandibular series, including a rudimentary branchiostegal ray in the posteroventral part of the operculogular series. The species from Elko County is further characterized by the presence of three discrete rows of teeth on the maxilla and dentary, whereas most other species have only two rows of teeth. The 3D surface model (Table 1) shows the arrangement and morphology of these diagnostic features.

INTRODUCTION

Here we present a 3D surface model of the holotype of *Birgeria americana*, an articulated partial skull, which was described by Romano et al. (2017). The fossil (NMMNH P-66225; Fig.1) is preserved in a limestone concretion, and curated in the New Mexico Museum of Natural History & Science, Albuquerque, USA. The nodule was found as float lying on strata of the Thaynes Group at a site located ca. 2.75 km south-southeast of the Winecup Ranch in east-central Elko County (northeastern Nevada, USA). Based on co-occurring ammonoids, the age of P-66225 is constrained to late early Smithian to early late Smithian (Olenekian, Early Triassic). *Birgeria americana* Romano et al., 2017 is distinguished from

METHODS

The 3D surface scan of NMMNH P-66225 (holotype of *Birgeria americana* Romano et al., 2017) was obtained using the ARTEC Spider 3D-surface scanner in combination with Artec Studio 9 software. The right side of the fossil was scanned manually in several steps and the overlapping individual scans were later stitched together to form a single mesh (including fine serial and global registration, automatic outliers removal and sharp fusion options). Then, the mesh simplification procedure of Artec Studio was applied to reduce file size. Finally, the color texture was mapped onto the mesh. The 3D surface model is provided in .ply and .obj format, and can therefore be opened with a wide range of freeware.

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Romano, C., Jenks, J.F., Jattiot, R., Scheyer, T.M., Bylund, K.G. & Bucher, H. 2017. Marine Early Triassic Actinopterygii from Elko County (Nevada, USA): implications for the Smithian equatorial vertebrate eclipse. *Journal of Paleontology*. <https://doi.org/10.1017/jpa.2017.36>